COCHIN UNIVERSITY OF SCIENCE AND TECHNOLOGY

NOTIFICATIONS

(1)

No. Conf. II/2941/1/07 (9). *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with Section 42(i) of the CUSAT Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the scheme of Examination of M.Sc. Meteorology (Lateral Entry) Course Prog. No. 4207 offered by School of Oceanology and Meteorology (SNOM), as appended.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

SCHEME OF INSTRUCTION & EXAMINATION M.Sc. (MET) LATERAL ENTRY

Sub Code	Subject	Total Hrs.	Scheme of Teaching (Hrs./Wk.)		Scheme of Examination				
			L	P	Dur (Hr.)	Th	P	O	Total
							Marks		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
07.01.01	Paper-I (Met Theory)	104	13	..	3	100	..	..	100
07.01.02	Paper-II (Instruments & Methods of Observation)	216	..	27	6	..	200	..	200
07.01.03	Paper-III (Viva-Voce)	..	..	..	..	..	..	100	100
07.02.04	Paper-IV (Dynamic Meteorology)	90	05	..	3	100	..	..	100
07.02.05	Paper-V (Physical Meteorology)	90	05	..	3	100	..	..	100
07.02.06	Paper-VI (Climatology & Statistics)	90	05	..	3	100	..	..	100
07.02.07	Paper-VII (Synoptic Meteorology)	90	05	..	3	100	..	..	100
07.02.08	Paper-VIII (Computer Programming)	90	05	..	3	100	..	..	100
07.02.09	Paper-IX (Dynamic Met Practicals)	270	..	15	9	..	300	..	300
07.02.10	Paper-X (Viva-Voce)	..	..	..	..	..	..	100	100
07.03.11	Paper-XI (Dynamic Meteorology)	90	05	..	3	100	..	..	100
07.03.12	Paper-XII (Physical Meteorology)	90	05	..	3	100	..	..	100
07.03.13	Paper-XIII (Physical Oceanography)	90	05	..	3	100	..	..	100

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
07.03.14	Paper-XIV (Climatology & Hydro Meteorology)	90	05	..	03	100	..	..	100
07.03.15	Paper-XV (Synoptic Meteorology)	90	05	..	03	100	..	..	100
07.03.16	Paper-XVI (Numerical Weather Prediction)	90	05	..	03	100	..	..	100
07.03.17	Paper-XVII (Practicals)	162	..	09	09	..	300	..	300
07.03.18	Paper-XVIII (Viva-Voce)	..	..	..	..	..	..	100	100
07.03.19	Paper-XIX (Project)	54	..	..	..	50	50	..	100
07.03.20	*Meteorology and Oceanography	950	24	..	03	100	..	..	100
07.03.21	*Viva-Voce	..	..	..	..	..	..	50	50

*Phase VI designated as a refresher for passing a theory paper and Viva-Voce on Meteorology and Oceanography.

(2)

In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approved the revised Scheme of Examination for M.Sc. Course in Meteorology as appended.

The Syndicate at its 513th meeting held on 21-5-2007 has approved the above decision taken by the Academic Council and made it effective from 2007 admission onwards.

REVISED SCHEME OF EXAMINATIONS OF M.Sc. METEOROLOGY COURSE
(Effective from 2007 Admissions)

Course Code	Paper	Core/Elective	Credits
(1)	(2)	(3)	(4)
I Semester			
ATM 2101	Geophysical Fluid Dynamics	E	4
ATM 2102	Atmospheric Physics	C	4
ATM 2103	Introduction to the Ocean	E	4
ATM 2104	Advanced Mathematics	E	3
ATM 2105	Numerical Methods	E	3
ATM 2106	Observational Techniques (Practical)	C	2
ATM 2107	Computer Programming I (Practical)	C	2
ATM 2108	Meteorological Instruments	C	2

(1)	(2)	(3)	(4)
II Semester			
ATM 2201	Synoptic Meteorology	C	4
ATM 2202	World Climatology	C	4
ATM 2203	Dynamic Meteorology I	C	4
ATM 2204	Cloud Physics & Atmospheric Electricity	E	3
ATM 2205	Remote Sensing	C	4
ATM 2206	Meteorological Computations I (Practical)	C	2
ATM 2207	Computer Programming II (Practical)	C	2
III Semester			
ATM 2301	Tropical Meteorology	C	4
ATM 2302	Dynamic Meteorology II	C	4
ATM 2303	Satellite Meteorology	E	2
ATM 2304	Air-Sea Interaction	E	3
ATM 2305	Middle Atmosphere	E	3
ATM 2306	Meteorological Analysis (Practical)	C	2
ATM 2307	Meterological Computations II (Practical)	C	2
IV Semester			
ATM 2401	Numerical Weather Prediction	C	4
ATM 2402	Agricultural Meteorology	E	3
ATM 2403	Hydrometeorology	E	3
ATM 2404	Atmospheric Chemistry	E	3
ATM 2405	Atmospheric Boundary Layer	E	3
ATM 2406	Air Pollution Meteorology	E	3
ATM 2407	Dissertation Evaluation and Comprehensive Viva-Voce	C	6

(3)

No. Conf. II/2941/1/07(11). *19th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the revised Scheme of Examination for M.Sc. Course in Hydrochemistry as appended.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

SCHEME OF EXAMINATION FOR M. Sc. (HYDROCHEMISTRY) CORE COURSES—56 CREDITS

(7 Theory × 4 + 6 Practicals × 2 + 1 Dissertation × 16)

Semester I

    A.   Core Papers—Theory (4 Credit each)

        COD 2101—Concepts in theoretical chemistry

        COD 2102—Stereochemistry and reaction mechanism

        COD 2103—Coordination Chemistry

        Practical—(2 Credit each)

        COD 2104—Quantitative Chemical Analysis

        COD 2105—Analytical Techniques

B.   ELECTIVE PAPERS

Semester II

A.   Core Papers—Theory (4 Credit each)

COD 2201—Thermodynamics and Surface Phenomena

COD 2202—General Chemical Oceanography

Practical—(2 Credit each)

COD 2203—Water Quality Analysis

COD 2204—Separation and Synthetic Methods

B.   ELECTIVE PAPERS

Semester III

A.   Core Papers—Theory (4 Credit each)

COD 2301—Solution Chemistry

COD 2302—Chemistry of Natural Products

Practical—(2 Credit each)

COD 2303—Physico Chemical Methods

COD 2304—Instrumental Techniques

B.   ELECTIVE PAPERS

Semester IV

A.   Core Papers—Dissertation (14 Credits)

Viva (2 Credits)

B.   ELECTIVE PAPERS

The following elective papers will be offered by Department to the M.Sc. (HC).

(1)   Analytical techniques in sea water analysis

(2)   Instrumental methods in Chemistry-I

(3)   Instrumental methods in Chemistry-II

(4)   Aquatic Pollution and Impact Assessment

(5)   Aquatic Chemical Resources

(6)   Water Management

(7)   Atmospheric Chemistry.

Electives will be given Code No. that is continuation to the Code No. of Core Papers in the respective Semesters.

(4)

No. Conf. II/2941/1/07(12).   *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to modify the Eligibility Criteria for Admission to M.Sc. Industrial Fisheries Course as follows:

"Bachelors Degree in Fisheries/Zoology/Botany with atleast 50% marks in the optional subjects. Bachelor Degree in Fisheries include Industrial Fisheries/Industrial Fish and Fisheries/Fishery Science/B.F.Sc. (Nautical Science)".

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

No. Conf. II/2941/1/07(13). *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the Regulations, Scheme of Examination and Question Paper Pattern of the Diploma Course in Hydrographic Survey (Prog. No. 8301) offered by Hydrographic School, Southern Naval Command under the Faculty of Marine Sciences as appended.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

REGULATIONS

1. Programme No.—8301.

2. Programme Name—Diploma in Hydrographic Survey.

3. Programme Code—DHS.

4. Approving Authority—Headquarters, Southern Naval Command.

5. Eligibility Criteria for admission—Matriculation with minimum 55% aggregate marks.

6. Duration :
    (a) 1st Semester—22 weeks Basic Training at INS Chilka.
    (b) 2nd Semester—25 weeks Basic 'Q' SR course at NHS.
    (c) 3rd, 4th & 5th Semester—72 weeks Distance Learning (Leading 'Q' Board)
    (d) 6th Semester—25 weeks at National Hydrographic School.

7. Attendance requirement—85% (Sailor remaining absent for more than 15% of the duration of the course are to be withdrawn from course with prior approval of Headquarters).

8. Nature—Full time.

9. Approved intake capacity—As approved by HQSNC/CABS.

10. Introduction.—The National Hydrographic School (NHS) is headed by Officer-in-Charge and there are two Departments namely Training and Administration Department headed by Chief Instructor and Administrative Officer respectively. The Training Department is divided into four faculties namely:
    (a) Faculty of Hydrographic Control
    (b) Faculty of Hydrographic Practice
    (c) Faculty of Ancillary Hydrography and
    (d) Faculty of Technical Orientation, each headed by an Officer and sufficient members under him.

Also a Training Design and Evaluation Cell (TDEC), Training Cell (TC) and Controllerate of Examination (COE) also function under the Training Department. TDEC controls all the revision and issue of all training materials held at the NHS including Syllabus, Lesson Plans, Presentations, OHP slides etc. Training Cell controls the day to day training requirements and also plans the training programme.

11. Conduct of Examination.—The Examinations are conducted by the COE on completion of the subject. The examination procedure is streamlined, so that the Faculty engaging the subject is neither involved in the setting up of question paper neither the correction of answer sheets. The COE nominates an instructor from the faculty other than the one which has engaged the particular subject to set the paper. The paper is vetted by the Chief Instructor. On completion of the examination the answer sheets are coded by COE before being handed over for corrections again to an instructor from the faculty other than the one which has engaged the particular subject. On completion of the correction of answer sheets, the same is decoded before the announcement of the results. The procedure of coding and decoding ensures that the identity of the trainee is not revealed to the paper Evaluator.

On completion of the theory examinations the field practicals are conducted . The evaluation of the practicals will be conducted by an external examiner appointed by CUSAT. Towards the fulfillment of external Examination, NHS will

be coordinating the appointment of external examiner in consultation with CUSAT. The external examiner will also carry out a random check of the corrected answer sheets of the course, so as to ensure the examination procedure is conducted in a fair and requisite manner.

12. Minimum Qualifying marks:—

      (a)   Written Examination—50%

      (b)   Practical Examination—65%

      (c)   Aggregate Pass Marks—55%

13.*Grading.*—The grading of the trainees is based on the final result, which is as follows:—

      (a)   80% and above O—Outstanding

      (b)   75% to 79.9% A—Distinguished

      (c)   70% to 74.9% B—Above Average

      (d)   65% to 69.9% C—High Average

      (e)   60% to 64.9% D—Average

      (f)   55% to 59.9% E—Below Average

      (g)   Below 55%   F—Failure

14. Failure in Examination:—

(a) Sailors failing in any one paper will be warned by the Chief Instructor. Extra classes will be conducted for him and re-examination conducted.

(b) Sailors failing in two papers will be warned by the Officer-in-Charge. Extra classes will be conducted and re-examination will be conducted.

(c) Sailors failing in three papers will be withdrawn from course with approval from Headquarters Southern Naval Command.

(d) Marks obtained in re-examination will be restricted to minimum pass marks for record purposes.

SCHEME OF EXAMINATION

Sl.No.	Subject/Examination	Total Hours	Marks
1	Hydrographic Control-I	70	100
2	Hydrographic Control-II	70	100
3	Hydrographic Practice-I	70	100
4	Hydrographic Practice-II	70	100
5	Basic Oceanography	70	100
6	Admin. Store & Teaching Technique	70	80 (Th) + 20 (P)
7	Data Processing-I	70	60 (Th) + 40 (P)
8	Data Processing-II	70	100
9	Data Processing II Practicals	70	100(P)
10	Field Practical Ashore	70	100
11	Field Practical Afloat	70	100
12	Class Work Book/Practical Work Book/Field Book/Fair Chart	..	100
	Total	770	1200

No. Conf. II/2941/1/07(14).   *4th June 2007.*

In excercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the Scheme of Instruction and Examination of B.Sc.   Meteorology (Lateral Entry) Prog. No. 4208 offered at SNOM as appended.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

SCHEME OF INSTRUCTION AND EXAMINATION
BSc (MET) Lateral Entry

Sub Code	Subject	Total Hrs.	Scheme of Teaching (Hrs./Wk)		Dur. of T/P(Hr.)	Scheme of Examination Marks			
			L	P		Th	P	O	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
08.01.01	Paper-I Fundamentals of Dynamics, Thermodynamics & Statistics	85	4.5	..	03	100	..	..	100
08.01.02	Paper-II Physical Meteorology & Climatology	85	4.5	..	03	100	..	..	100
08.01.03	Paper-III Dynamic Meteorology & Climatology	85	4.5	..	03	100	..	..	100
08.01.04	Paper-IV Aviation Meteorology and Computers	85	4.5	..	03	100	..	..	100
08.01.05	Practicals-I	115	..	6	03	..	100	..	100
08.01.06	Practicals-II	115	..	6	03	..	100	..	100
08.01.07	Project/Oral	170	..	..	03	..	60	40	100
08.01.08	*Written examination theory	480	14	..	03	100	..	..	100
08.01.09	*Viva-Voce	..	..	..	..	..	..	50	50

*Phase V designated as a refresher for passing theory paper and Viva Voce on Meteorology and Oceanography.

No. Conf. II/2941/1/07(15).   *5th June 2007.*

In excercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved that "All courses offered by various schools under Indian Navy should have 100% internal Evaluation".

The Syndicate at its 513th meeting held on 21-5-2007, approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

No. Conf. II/2941/1/07(16). *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with Section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the amendments in the Scheme of Instructions and Examination and grading system for the M.Sc. Course in Underwater Armament, Sonar Systems and Tactical Operations, Prog. No. 8803, Long ASW Course of Southern Naval Command as appended.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

<div align="center">REGULATIONS</div>

1. Programme No.—8803

2. Programme Name—M.Sc. Under Water Armament, Sonar Systems and Tractical Operations

3. Programme Code—LASW

4. Approving Authority—Naval Headquarters

5. Eligibility Criteria for Admission—

    (a) Officer nominated by Naval Headquarters

    (b) A degree in P/C/M or equivalent from a recognized University

6. Duration—48 weeks

7. Attendance Requirement—80%

8. Nature—Full Time

9. Approved intake capacity—25/As approved by HQSNC

10. Examination Pattern—Exam Paper setter will be other than subject instructor as nominated by CI.

11. Minimum qualifying marks:

    (a) Aggregate marks   —   55%

    (b) Written Examination —   50%

    (c) Practicals   —   65%

12. *Grades.*—The following are the grades for performance in individual subject.

Range of Marks	Grades	Weightage
90% and above	S–Outstanding	10
80—90%	A–Excellent	9
70—80%	B–Very Good	8
60—70%	C—Good	7
50—60%	D–Statisfactory	6
Below 50%	F–Failure	0

(a) *Cumulative Grade Point Average.*—Overall performance at the end of the course is indicated by Cumulative Grade Point Average (CGPA) calculated as follows for all subjects:—

$$CGPA=\frac{G_1C_1+G_2C_2+G_3C_3+............GnCn}{C_1+C_2+C_3+................Cn}$$ (G=grade weightage and (C=corresponding subject)

(b) The classification on degree would be as follows:—

Classification	CGPA
First Class with Distinction	8 and above
First Class	7 and above
Second Class	6 and above

13. **Failure in Examinations**

    (a) The following will entail withdrawal from Long Course:—

        (i) *Major Subjects*.—Failure in two major subjects

<p align="center">OR</p>

        (ii) *Major and Minor Subjects.*—Failure in a combination of one major subject and two minor subjects.

<p align="center">OR</p>

        (iii) *Minor Subjects*.—Failure in three minor subjects.

    (b) Re-examination

        (i) Trainees who fail in one minor subject are to be warned by the Chief Instructor. Those who fail in one major subject or more than one minor subject are to be warned by the Officer-in-Charge.

        (ii) Trainees who fail in one major subject/one major and one minor subject/two minor subjects are to be re-examined, after giving them at least one week notice and extra coaching if required.

        (iii) Failure in re-examination in any major subject would entail withdrawal from course. Failure in re-examination in a minor subject would add to the aggregate of failures in minor subjects and actions which ensue should confirm to para (ii) above. No trainee is however eligible for re-exam in the same subject more than twice. Failure in second re-exam for the same minor subject would entail withdrawal.

        (iv) Project work is to be considered as one of the major subject to attain the Long Course qualification. Failure in it would attract penalties as enumerated in para (ii) above.

<p align="center">SCHEME OF INSTRUCTIONS & EXAMINATION M.Sc. COURSE IN UNDER WATER ARMAMENT,
SONAR SYSTEMS AND TACTICAL OPERATIONS
(LONG ASW COURSE)</p>

Sub Code	Subject	Total Hrs.	Scheme of Teaching			Scheme of Examination			
			L	P	Dur.of T/P(Hrs.)	TH	P	O	Total
03.01	Under Water Acoustics	60	56	4	4	150	..	..	150
03.02	Digital Electronics	30	29	1	1.5	50	..	..	50
03.03	Applied Mathematics	50	50	..	3	100	..	..	100
03.04	Computer Networking	80	55	25	1.5	50	..	..	50
03.05	Sonar Theory	120	80	40	4	150	..	..	150
03.06	Naval Weapon Systems	70	50	20	4	175	25	..	200
03.07	Lofar	60	45	15	1.5	40	10	..	50
03.08	Rocket Launchers	30	20	10	3	80	20	..	100
03.09	Torpedos	55	40	15	4	125	25	..	150
03.10	Under Water Sensors	25	20	5	3	100	..	..	100
03.11	Mine and Mine Counter Measures	60	45	15	4	150	..	..	150
03.12	Tactics	350	320	30	6	350	..	..	350
03.13	Gasw/Seaward Defence/ Demolition	40	30	10	3	80	20	..	100
03.14	Project Work	140	140	..	14	..	..	50	200
03.15	End of Term Board	150	150	..	3	..	..	100	100
	Total Marks	1320 Hrs. (48 Weeks)	..	..	..	..	..	..	2000

No. Conf. II/2941/1/07(17).   *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved to approve the introduction of following 4 new electives for the MCA Course.

   (a)   E37   Advanced JAVA Programming
   (b)   E38   Software Testing
   (c)   E39   Software Project Management and
   (d)   E40   Number Theory

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

No. Conf. II/2941/1/07(18).   *5th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved that the following be added in the scheme of Examination for MCA Course.

Viva voce examinations for semester I to IV be replaced by lab examinations with viva-voce. Maximum marks will be 100 with 50 marks internal. The Internal Evaluation is distributed as follows: 20 marks for records and 30 marks by continuous evaluation. In the external 50 marks; 30 marks for practical and 20 marks for viva-voce examination. The lab examination should be of 3 hours duration. A question bank of 50 questions will be prepared and made available to the students at the beginning of the Semester and every student should complete at least 30 questions for the practical record. The records should contain the algorithms/pseudo code and properly documented program codes with outputs duly endorsed by concerned teachers.

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

No. Conf. II/2941/1/07(19).   *4th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved that the following be incorporated at the end of Clause (iii) Under Section 3—Eligibility for Admission to the Ph.D. programme of the Ph.D. Regulations 2004.

"Candidates who have qualified UGC/NET Lectureship Examination or GATE are exempted from Departmental Admission Test. Those NET/GATE/ICAR qualified candidates can join any time but they will be getting the fellowship along with the Departmental Admission Test qualified candidates who appear before the Fellowship Committee".

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it effective from 3-2-2007, the date of meeting of the Academic Council.

No. Conf. II/2941/1/07(20).   *4th June 2007.*

In exercise of the powers conferred by Section 24 (ii) read with section 42 (1) of the Cochin University of Science and Technology Act 1986, the Academic Council at its meeting held on 3-2-2007 resolved that the Eligibility Criteria for Admission to the M.Sc. (Meteorology) Lateral Entry, Prog. No. 4207 offered at School of Naval Oceanology and Meteorology (SNOM) under (a) be amended as given below:

"B.Sc. Degree in Physics/Mathematics/Chemistry or BE/B.Tech. with 55% marks or M.Sc. Physics/Mathematics/ Chemistry from any University".

The Syndicate at its 513th meeting held on 21-5-2007 approved the above decision taken by the Academic Council and made it applicable from March 2006.

Cochin University P.O.,   Dr. A. RAMACHANDRAN,
Kochi-22.   *Registrar.*